A COMMISSION has been appointed by M. Cochery to determine the conditions of security requisite for laying electric cables to transmit currents of high tension. This step has been taken in connection with the experiments conducted at Creil and the Gare du Nord with the Marcel-Deprez system, as well as others which may be in preparation.

THE observer at the meteorological station on the summit of the Obir (Carinthia) reports that on October 11, at 8.15 p.m., he saw a beautiful display of St. Elmo's fire. The points of the vanes, the telephone wires, and the tops of the posts supporting this wire shone brilliantly in a whitish-blue light.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀), a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. John Roberts; a Bonnet Monkey (*Macacus sinicus* ♂) from India, presented by Mr. David McCance; a Montagu's Harrier (*Circus cinerascens*), European, presented by Lord Lilford, F.Z.S.; a Banded Gymnogene (*Polyboroïdes typicus*) from West Africa, a Gold Pheasant (*Thaumalea picta* ♂) from China, an Indian Python (*Python molurus*) from India, deposited; three Lions (*Felis leo*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE BINARY STAR α CENTAURI.—In the last number of the *Monthly Notices* of the Royal Astronomical Society, Mr. E. B. Powell, so favourably known for his excellent measures of double-stars, made during his residence in India, has a note in which he gives reasons for concluding that the period of revolution of this most interesting binary is longer than has been assigned by the later calculations of its orbit, and, instead of a period of 77½ years, which is about that found by Dr. Elkin, he considers that one of 86 or 87 years is better supported by the earlier observations, viz. those by Richaud at Pondicherry in December, 1689, and by Feuillée at Lima on July 4, 1709. The results of an investigation by Dr. Doberck, communicated to the writer early in 1879, rather tend to support Mr. Powell's conclusion. Dr. Doberck's elements, which are professedly only provisional ones, are as follow:—

Periastron passage	1875·12	
	°	′
Node	25	32
Angle between the lines of nodes and apsides ...	45	58
Inclination	79	24
Excentricity	0·5332	
Semi-axis major	18″·45	
Period of revolution	88·536 years.	

In this orbit the angle and distance at the epochs of the observations of Richaud and Feuillée would be:—

1689·95	...	Position,	14°·9	... Distance,	9″·54
1709·51	...	,,	200·8	... ,,	14·74

ENCKE'S COMET.—The elements of this comet for the approaching perihelion passage are as follow, according to the calculations of Dr. O. Backlund of Pulkowa:—

Perihelion passage 1885, March 7·6523 G.M.T.

	°	′	″	
Longitude of perihelion	158	32	45·0	Mean Equinox 1885·0
,, ascending node ...	334	36	54·6	
Inclination	12	54	0·1	
Angle of excentricity	57	45	20·5	
Mean daily sidereal motion ...	1072″·97311			

The corresponding period of revolution is 1207·86 days. An ephemeris for January will appear next week.

BARNARD'S COMET.—Prof. Frisby of Washington has calculated elliptical elements of this comet from observations made at the Naval Observatory between August 12 and October 20, and therefore extending over sixty-nine days. The period of revolution in his orbit is 1878·65 days, or 5·143 years, but this element does not appear to be as yet very closely determined, much less so indeed than in the case of the second new comet of short period detected during the present year by Wolf. In Prof. Frisby's orbit the distance of the comet at aphelion from the orbit of Jupiter would be 0·705, the aphelion distance being 4·683, therefore considerably within the orbit of the planet; at the ascending node the comet's distance from the sun would be 1·552, and at the opposite node 3·942. Taking these conditions into account, it would appear probable that it has been long moving in its actual orbit. The comet, however, belongs most likely to the fainter class of those revolving in short periods, and in the present year has been observed under somewhat favourable circumstances: it approaches nearest to the earth when the perihelion passage takes place between a fortnight and three weeks earlier than in 1884. On November 20, M. Perrotin observing with the Gauthier-Eichens equatorial of the Observatory of Nice, aperture 0·38 m., found the comet near the limit of vision for that instrument; he remarks:—"Pour la rendre sensible à l'œil et bien saisir sa position exacte, on était obligé d'agiter legèrement la lunette en ascension droite, tantôt dans un sens, tantôt dans l'autre." The position determined for that evening was as follows:—

Nov. 20 at 7h. 25m. 38s. Nice M.T. R.A. 22h. 38m. 21·85s.,
N.P.D. 97° 18′ 20·4″.

The Observatory of Nice (Mont-Gros), established through the munificence of M. Bischoffsheim of Paris, is in longitude 0h. 29m. 12·2s. east of Greenwich, and in latitude 43° 43′ 16″·7.

GEOGRAPHICAL NOTES

THE correspondent of the *Times* with the Afghan Boundary Commission, writing from Khwaja Ali on October 16, describes the march of the expedition from Quetta to the Helmand. The geologist, Mr. Griesbach, describes the geological features of the country as much the same as those seen in the Pishin and Candahar country, viz. steep, deeply-eroded mountain ranges with a general strike of north, south to north-east, south-west, the intervening valleys being filled by Post-Tertiary deposits, which form extensive plains and glacis. The ranges of hills are more or less continuations of ranges, which are crossed by the Quetta-Candahar road. After leaving Kanak, one crosses the south-western end of the Ghaziaband range, which is composed of sandstone, shales, and grits of the "flysch" facies of the Eocene rocks. Beyond that range one enters the southern extension of the Lora plain of the Pishin. The white and coloured clays of the Siwaliks, seen from Dina Karez in the Pishin, are again seen (afar off) from Panjpai, and no doubt they underlie most of the Post-Tertiary deposits which form the surface of these wide valleys). The low ridges between Panjpai and Nushki are composed of sandstones, flaggy limestone beds, and friable shale, identical with the "Soliman" sandstone, and entirely belonging to the Lower Cretaceous series. The contact between the hippuritic limestone and the trap contains in the Candahar district gold (with traces of nickel) and galena ores. The water found below the surface is the natural drainage from the hills, contained in the gravels and sands of the Post-Tertiary fan deposits, inclosed between the clays of the Siwaliks below, and the recent conglomerate (a kind of kankar) above.

DR. CHAVANNE, who visited the Congo by order of the Brussels Geographical Society, has returned to Lisbon for a short period in order to recruit his health, which has suffered by the tropical climate.—Herr Flegel, who was preparing for a new expedition into the Benué districts, is also detained in Europe by ill health.—The Russian traveller, M. Piasecki, well known through his travels in China in 1874, is about to start on another exploring expedition to that country under the patronage of the Emperor of Russia and the Grand Duke Wladimir.

IN a recent number of the *Revue Scientifique* there is a long article by M. L. Simonin, on the geography of China. The area of the whole Empire of China is estimated at 11,574,356 square kilometres, *i.e.* the largest empire in the world next to that of Russia, which is 21,702, 230 square kilometres. China proper, however, is only 4,024, 690 square kilometres, *i.e.* two-fifths of Europe, seven times the size of France, and fifteen times that of Great Britain. With regard to the population of China it is not possible to give precise and absolutely trustworthy numbers, there being no proper official census in force in the Empire. The statistician of the Imperial Chinese Customs sets down the actual population of China at 250,000,000. A census drawn up in 1882 for fiscal purposes, and cited by the United States Minister in China, gives 255,000,000 as the number of the population. In the lower basin of the Yang-tse-Kiang as

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many as 420 people are to be found crowded within the limits of one square kilometre. The total debt of the Government is reckoned at 266,000,000 francs, of which 214,000,000 francs have been contracted within the Empire itself, leaving only 52,000,000 francs of foreign debt. The army is composed of two large bodies: the Tartar army, including the Manchoos and the Mongols; and second, the Chinese army. The Tartar army, guarding Pekin, the frontiers, and the coast, comprises the army of Manchooria of 30,000 men, the Mongolian army of 20,000 men, the Turkestan army of 40,000, and lastly the army occupying the maritime provinces, numbering 100,000. The Chinese army proper is distributed throughout the eighteen provinces, and performs the functions of police in addition to its military duties. Its number ranges from 20,000 to 100,000 in each province, according to its population and its defensive requirements. The navy in 1879 was estimated to comprise fifty-six ships armed with 283 guns, and manned by 5860 marines. Since that date, however, the fleet has been largely developed.

L'Exploration states that the Geographical Society of Amsterdam is about to acquire the fac-simile of the most ancient map known, and which represents the Roman Empire as it was in the time of Augustus. It is formed of eleven folding maps, which make one large map 8½ metres in length. The original is in the Royal Library at Vienna, which purchased it in the sixteenth century from the estate of Conrad Peutinger of Augsburg, a circumstance which gave the map its name of *Tabula Peutingeriana*. Peutinger purchased it for 40 ducats. The original, which is dated 1265, was the work of a Dominican monk of Colmar.

THE deaths are announced of two Italian geographers and travellers, Eugenio Balbi and Carlo Guarmani. The former was the son of the celebrated Adrien Balbi, and was born at Florence in 1812. After several years' travel in Europe, he finally returned to Italy, where he devoted all his energy to the study of ethnography and geographical science. His principal works are: "Gea"; "I monumenti della geografia nell' evo medio e moderno"; "L'Italia nei suoi naturali confini." Guarmani had travelled widely, and in his last years was one of the correspondents of the geographical review of Milan, *L'Esploratore*.

THE Institute of Argentine Geography has decided to organise an expedition into the Andes of Patagonia. The explorers will leave Lake Nahuel-Huapi, and will then undertake a detailed investigation from a geographical point of view of the Argentine slope of the Andes, following it to the Straits of Magellan. The head of the expedition will be Capt. Moyano, who has been instructed to present a report to the Institute at the earliest possible date, indicating the plan of work, the instruments, and other objects necessary, as well as an approximate estimate of the expense. The Federal Government will be requested to grant the co-operation of the troops stationed on the frontiers of Limay, as well as to send a sloop-of-war to act where possible in concert with the expedition.

A TEACHING UNIVERSITY FOR LONDON

IN connection with our leading article this week we append the following Plan for Promoting a Teaching University for London, which was discussed at the meeting:—

A sub-committee was appointed on Monday, November 10, to draw up a plan, in accordance with the objects of the Association for promoting a Teaching University which are as follows:—(1) The organisation of University Teaching in and for London, in the form of a Teaching University, with Faculties of Arts, Science, Medicine, and Laws. (2) The association of University Examination with University Teaching, and direction of both by the same authorities. (3) The conferring of a substantive voice in the government of the University upon those engaged in the work of University Teaching and Examination. (4) Existing Institutions in London, of University rank, not to be abolished or ignored, but to be taken as the bases or component parts of the University, and either partially or completely incorporated, with the minimum of internal change. (5) An alliance to be established between the University and the Professional Corporations, the Council of Legal Education as representing the Inns of Court, and the Royal Colleges of Physicians and of Surgeons of London.

The Sub-Committee, consisting of Lord Reay, Chairman, Prof. John Marshall, F.R.S., Ex-P.R.C.S., Dr. W. M. Ord, F.R.C.P., Mr. F. Pollock, Barrister-at-Law, Mr. R. S. Poole, British Museum, Dr. P. H. Pye Smith, F.R.C.P., Prof. G. C. W. Warr, King's College, Prof. A. W. Williamson, University College, and Sir George Young, met and considered the subject of reference, and submitted the following proposed plan of a Teaching University for London for the consideration of the Committee, on Monday, the 15th inst.:—

(*a*) THE CONSTITUTION OF THE TEACHING UNIVERSITY.—To be founded on (1) the *Faculties* or Constituent Bodies; (2) a *Board of Studies* for each Faculty; (3) a Governing Body or *Council*.

(1) *The Council*.—To consist of Members representative of—

(*a*) The several Faculties. The proportion of representatives of the Faculties to the whole number of the Council to be at least one-third.

(*b*) The Senate of the University of London.

(*c*) The Council of Legal Education.

(*d*) The Royal Colleges of Physicians and of Surgeons.

(*e*) It should be a point for future consideration whether other Public Bodies should be directly represented on the Council, *e.g.*, the Authorities of the British Museum, of the Royal Academy and Royal Society, of the Incorporated Law Society, and of the Institute of Civil Engineers.

(*f*) Colleges and other Educational Institutions associated with the University. The amount of representation and the qualification for direct representation on the Council to be determined, in each case, having regard both to the nature and the amount of the educational work performed by the Associated Institution.

(*g*) Endowing Bodies, *e.g.*, the Crown, if the Teaching University should receive State endowment; the Corporation and Companies of the City of London, if they contribute to endow the University.

Representatives of Associated Institutions and Endowing Bodies not to exceed one-third of the whole number of places on the Council.

(2) *The Boards of Studies*.—To be elected by each Faculty. Some additional Members might be appointed by the Council. The Board to advise in all matters relating to the Faculty, and to exercise authority in such matters as are delegated to it by the Council. Facilities to be provided for joint meetings and action of two or more Boards of Studies when necessary. The Board to appoint some or all of the representatives of the Faculty upon the Council. If any are appointed by the Faculty direct, they should also be *ex officio* Members of the Board.

(3) *The Faculties*.—To consist for electing purposes of—

(*a*) Teachers: being Professors, Lecturers, or persons of equivalent standing, in the Colleges or Educational Institutions associated with the University.

(*b*) Examiners for the time being in the Teaching University and in the existing University.

(*c*) Additional Members, to be appointed by the Council, on the recommendation of the Board of Studies.

There might also be Honorary Members of Faculties, including Graduates in that Faculty, of the Teaching University; Members of Convocation of the existing University according to their Degrees; recipients of degrees *honoris causâ*, and so forth; such Honorary Members having the right to attend and vote only at a General Meeting of the Faculty, to be summoned on requisition when necessary.

(*b*) RELATIONS OF THE TEACHING UNIVERSITY WITH OTHER BODIES.—(1) *The Existing University*.—There might be one Chancellor, with two Vice-Chancellors, the Teaching University and existing University constituting one University in two departments. The Degrees might, if necessary, be distinguished by their designation in some suitable manner. The Senate of the existing University would remain unaltered, would be appointed as at present, and would control the present Examinations and confer Degrees, without interference. Convocation might accept the Graduates of the Teaching University as full Members. The Teaching University might, so far as is practicable, find a place of meeting at Burlington House, together with the existing University.

(2) *The Professional Corporations*.—Degrees in Law, Medicine, and Surgery to be recognised as qualifying *pro tanto* for Call to the Bar or for Licence to practise, the power of Calling to the Bar or of conferring Licences to practise being reserved to the existing Authorities. The previous Examinations of the Teaching University to receive recognition by those Authorities, such as is now given to the Examinations of existing Universities.

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